Cardiac Imaging

OP-139

The Effect of Mitral Stenosis and Percutaneous Balloon Valvuloplasty on Coronary Artery Blood Flow and Reserve

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Objective: Mitral stenosis is still one of cause of morbidity and mortality. The association of mitral stenosis and ventricular dysfunction was proven in previous studies; while the relationship between mitral stenosis and coronary artery blood flow hasn't been studied yet. We investigated the correlation between isolated severe mitral stenosis and coronary artery blood flow reserve in this study.
Method: The patients with severe mitral stenosis, diagnosed by quantitative methods, were included in this study. Left anterior descending artery blood flow was evaluated by coronary presets and pulse wave Doppler ultrasonography. After injection of dipyridamole on basal conditions hyperemic systolic and diastolic blood flows were evaluated and blood flow reserve was calculated. Percutaneous balloon valvuloplasty was performed in all the patients and coronary artery blood flow reserve was re-evaluated. The values before and after the intervention were compared.
Results: Twenty patients were included in this study (14 male and 6 female; mean age 44.4). After the intervention peak blood flow velocities were found to be significantly increased in basal and hyperemic systolic (basal systolic blood flow velocity 12,0±1,85 cm/s vs. 14,75±1,28 cm/s p=0,009, hyperemic systolic blood flow velocity 17,62±4,83 cm/s vs. 24,50±7,15 cm/s p=0,018) and diastolic (basal diastolic blood flow velocity 21,62±5,70 cm/s vs. 31,00±7,07 cm/s p=0,02, hyperemic diastolic blood flow velocity 44,62±10,14 cm/s vs. 52,62±11,57 cm/s p=0,002) blood flows. However the difference on coronary artery reserve values were not found to be statistically significant (diastolic coronary blood flow reserve 2,14±0,54 vs. 1,71±0,27 p=0,05, systolic coronary artery blood flow reserve 1,46±0,29 vs. 1,67±0,50 p=0,30).
Conclusion: Percutaneous balloon valvuloplasty increases the coronary artery blood flow without affecting coronary artery blood flow reserves. Low coronary artery blood flow may be an etiological factor on subclinical left ventricular dysfunction in isolated mitral stenosis patients.

General

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Cardiovascular System Effects of Anti-personnel Agents

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Pepper sprays, mostly known as gas bombs in our country, are commonly used for suppression of social protests. Chlorobenzylidenemalononitrile (CS), Chloroacetophenone (CN) and Oleoresin capsicum (OC) are the most famous ones. The OC, mostly used in Turkey, is an oily extract obtained by grinding of hot pepper. Those agents which belong to capsaicinoid group, have pharmacological and toxic effects on cardiovascular, ocular, digestive and respiratory systems. Capsaicine has a dose dependent effect on cardiovascular system. In experimental trials, 1 mcg intravenous administration found to have a triphasic response in blood pressure(BP). After reduction of BP and heart rate, a temporary increase of BP followed by permanent BP raise, is seen. After administration of capsaicine of 50 mcg for 12 minutes, tachycardia and continuous BP raise is detected. Pepper spray has an irritative effect on skin and mucosal membranes which is taken to body by respiratory or digestive mucosas or directly from the skin. The effect starts 3-5 seconds after exposure and continues decreasingly for another 15 to 60 minutes. If exposed by respiration, some complex cardiopulmonary effects such as apnea, bradycardia, biphasic changes of BP, bronchoconstriction, respiratory mucosal edema, tachypnea, hypotension is seen.Turkish Medical Association made an assessment among people who were exposed to antipersonnel agents and detected hypertensive attacks of 137 people occured after exposure. The possibility of respiratory failure in asthmatic patients should not be forgotten. Sudden cardiac death due to bradicardia, hypotension or arrhythmia is reported. In a report prepared by American Civil Liberties Union of Southern California (ACLU) 26 deaths were detected caused by pepper gas exposure. USA's medical reports hold the gas bombs and pepper gas responsible for 100 deaths in 30 years. Acute myocardial infarction due to pepper gas exposure is also stated in medical literature.

As Paracelcus said "The dose alone makes the poison" (Dosis Sola Facit Venenum). However the authorities claim that antipersonnel agents don't have permanent or mortal effects if used in appropriate doses, there isn't any scientific, systematic trial showing the safety of those agents. The ethical uncertainty still remains and permanent or mortal effects are still question mark. Based on the harmful effects of pepper gas, as limitless and inappropriate usage may cause major adverse events, we invite the authorities to act more carefully in future.

Echocardiography

OP-141

Effect of Radiotherapy on Impaired Aortic Elasticity and Stiffness in Breast Cancer Patients

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We evaluated the effect of radiotherapy (RT) on the elastic properties of the aorta by using echocardiography in breast cancer (BC) patients. One hundred five women with left sided epidermal growth factor receptor2 (erb-2) BC were divided into 2groups; Group I: Patients did not receive RT. Group II: Patients received RT. In all patients, echocardiographic examination and serum high sensitivity C-reactive protein (hsCRP) levels were determined. A significant decrease in aortic distensibility (AD) and increased in hsCRPwas seen through Group 1 to Group 2. AD was inversely correlated with left ventricle diastolic diameter, systolic blood pressure (SBP), left atrial diameter, age and RT dose. AD was significantly related withage, SBP and RT dose. Increased RT dose is significantly correlated with impaired elastic properties which may contribute to the relation of RT and increased rate of cardiovascular events among patients with BC who received RT.

Echocardiographic and biochemical results of patients

	Group I (n=52)	Group II (n=53)	P
LVEF (%)	62.7 ± 3.3	61.3 ± 4.9	0.08
LVDD (mm)	45.7 ± 5.1	47.6 ± 5.5	0.68
LVSD (mm)	30 ± 3.9	32.2 ± 5.1	0.01
Left atrium (mm)	31.3 ± 4	33.3 ± 3.8	0.01
LVMI (g/m2.7)	50.9 ± 13.8	53.8 ± 14.3	0.29
AD(cm2/dyn/103)	5.7 ± 2.5	4.6 ± 1.9	0.02
Ao Strain (%)	15 ± 5.2	14 ± 4.5	0.30
hsCRP (mg/dl)	0.51 ± 0.33	0.86 ± 0.66	0.02